Space Weather Forecast

Issued on Wednesday, 18 May 2022 at 13:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of Strong Radio blackouts, with Minor to Moderate Radio Blackouts likely.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours with only common-class flares observed. This is despite a large and notable sunspot region developing near the north centre disc. This region has a complex magnetic field, and is the main source of any likely activity with all other regions much smaller and simpler. No Earth-directed Coronal Mass Ejections (CMEs) have been observed in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind declined from elevated levels of 600km/s to around 450km/s as the influence of the fast wind from a coronal hole eased. The Interplanetary Magnetic Field was mainly weak with no noteworthy north-south component. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain at Low to Moderate levels, with an ongoing chance of further Moderate flares, and a slight chance of Strong flares.

Solar Wind / Geomagnetic Activity: A weak CME was observed during 17 May. This has been assessed as most likely passing behind Earth's orbit on 20 May, but may give a glancing blow. Confidence is very low, however. A further fast wind arrival is expected later day 1 or early day 2 (18th or 19th), originating from another coronal hole. Solar winds are likely to become elevated again, only gradually easing later day 3 or day 4 (20th or 21st). Geomagnetic activity is forecast to be largely Quiet to Unsettled with a slight chance of Active intervals. However, this is expected to increase to Unsettled to Active with a slight chance of a G1/Minor Storm interval due to the fast wind arrival.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring. There is a chance of this count rate increasing due to any notable flares, most likely from the large and developing sunspot near the north centre disc.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	15	15	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	60	60	50	40
Very Active	R3 to R5 X	No	25	25	20	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.